REMARKS

Entry of the above amendment and reconsideration of this application are respectfully requested. Upon entry of the amendments this application will contain claims 11-21 and 32-44 pending and under consideration. The matters raised in the Office Action have been carefully considered and addressed in the above amendments and the following remarks. Therefore, it is believed that the application is now in condition for allowance, and action to that end is earnestly solicited.

At page 2 of the Office Action, in paragraph 1, an objection is made to the disclosure because of a spelling informality in line 16 of page 10. To respond, the spelling of the word "including" has been corrected at this location. Entry of the correction and withdrawal of this objection are solicited.

At page 2 of the Office Action, in paragraph 2, a request was made for the applicant to correct any errors noticed in the specification. In response, the specification has been reviewed, and several additional spelling and grammatical corrections were noted and are corrected in the amendments to the specification made above. This review also led to amendments to claims 14, 16 and 44 above to make spelling corrections. Entry of these corrections is requested.

At pages 2 and 3 of the Office Action, in paragraph 4, claims 16, 37, 39, 40 and 44 were rejected under 35 USC § 112, second paragraph. For claims 16, 37, 39 and 44, the Office Action states that this rejection is supported because "the phrase 'The system ... comprises a precursor material' is indefinite for claiming the precursor material as part of the structure of the system." For claim 40, the Office Action states that the same rejection is proper "for claiming a liquid as part of the structure of the system".

For this rejection to hold proper, one of ordinary skill in the art must be unable to determine the metes and bounds of the claim from the language used. The statements in the Office Action appear to assert that one of ordinary skill in the art would be intractably confused by reference to a precursor material or liquid as a part of a "system". It is respectfully submitted that this is not the case.

A "system" is readily understood to be "A group of interacting, interrelated, or interdependent elements forming a complex whole". See definition 1, The American Heritage® Dictionary of the English Language: Fourth Edition (2000). Thus, the components of a system clearly do not need to be confined to rigid, mechanical parts that interact in some way, as the Office Action implies. Rather, any variety of disparate elements can be considered a part of a system – solids, liquids, gases, etc., and one skilled in the art would encounter no confusion in considering the claimed precursor material as a part of the claimed system. This is particularly true in light of the established case law under 35 U.S.C. § 112, second paragraph, that the claim terms are to be interpreted by the ordinarily skilled artisan in view of the specification, which explains how the precursor material forms a part of the system.

In summary, the terminology used in claims 16, 37, 39, 40 and 44 is clear. Withdrawal of the rejection under 35 U.S.C. § 112 is therefore solicited.

At pages 3-6 of the Office Action, in paragraph 6, claims 11-21 and 32-34, 37-44 are rejected "under 35 USC § 103(a) as being unpatentable over Mutterer, Jr. et al. (6,258,329 B1) in view of Moisan et al. (US 6,224, 836 B1) and Warmbier et al. (US 5,540,886)". In response, it is requested that the Examiner consider the following remarks, which explain why the proposed combination of Mutterer, Moisan and Warmbier stated in the Office Action does not render these

claims unpatentable in an analysis conducted in accordance with the established principles of application of 35 USC § 103.

When rejecting claims under 35 U.S.C. § 103, "the Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art." *In re Fitch*, 23 U.S.P.Q. 2d 1780, 1783 (Fed. Cir. 1992). To establish a prima facie case of obviousness, the Examiner must provide objective evidence 1) of some suggestion or motivation to combine or modify one or more prior art references, 2) that the suggested combination or modification has a reasonable expectation of success, and 3) that the prior art reference or references, when combined, suggest or teach all of applicant's claim limitations. MPEP § 2143. As held by the Federal Circuit, "[t]hese findings or evidence must be specific, clear, and particular." *In re Lee*, 61 U.S.P.Q. 2d 1430, 1433-34 (Fed. Cir. 2002). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not [considered sufficient] 'evidence' " to support a finding of prima facie obviousness. *In re Dembiczak*, 50 U.S.P.Q. 2d 1614, 1617 (Fed. Cir. 1999); See also, *Ex Parte Levengood*, 28 U.S.P.Q. 2d 1300, 1301 (Bd. Pat. App. & Int. 1993).

Obviousness determinations must be performed without "entry into the 'tempting but forbidden zone of hindsight.'" *Dembiczak*, 50 U.S.P.Q. 2d at 1616 (Fed. Cir. 1999). More specifically, in *Dembiczak*, the Federal Circuit offered the following guidance:

> [m]easuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. . . .

Dembiczak, 50 U.S.P.A. 2d at 1617. The best protection against the use of hindsight is a rigorous application of the motivation to combine criterion, which results in most *prima facie* obviousness determinations hinging on an objective finding of some motivation or suggestion to combine or modify one or more prior art references. See, *Dembiczak*, 50 U.S.P.Q. 2d at 1617; *In re Roufett*, 47 U.S.P.Q. 2d 1453, 1457-58 (Fed. Cir. 1998).

Turning now to the basis for this rejection, the Office Action in essence takes the position that it would have been obvious to add certain parts from the devices of Moisan and Warmbier to the device of Mutterer, and that on this basis claims 11-21, 32-34, and 37-44 are unpatentable. The applicant respectfully submits that this stated rejection fails to establish a *prima facie* case of obviousness of claims 11-21, 32-34 and 37-44.

In the Office Action, Mutterer is relied upon for teaching a device for microwave assisted chemical processes that includes a source of microwaves, a microwave transparent barrier, a microwave reflecting enclosure, and a feed back control. Mutterer is also relied upon as suggesting that the microwave transparent barrier is vapor tight, and adding liquid from a source to the microwave transparent barrier. The Office Action states that "The differences between Mutterer and the above claims are the provision of the recited solvent vapor removal device, gas concentration sensor, supply vessel and the intended use of the device for the generation of high purity gas". The Office Action then states that "...Moisan shows in a device for microwave assisted chemical processes the provision of the recited solvent vapor removal device 66 or 68 and a sampling cell 78 or 80 capable of analyzing the gas by Fourier transform infrared spectrometry (Fig. 6)" and then that "Warmbier shows in a device for microwave assisted chemical processes the provision of gas concentration

sensor in addition to pressure and temperature sensors to control the treatment process."

Following the above identification of the various parts disclosed in the various references, the Office Action states:

> The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Mutterer's teachings as shown by Moisan and Warmbrier because the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248; *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

It is respectfully submitted that the cases cited immediately above actually support the conclusion that the present claims are nonobvious and patentable over the proposed combination of Mutterer, Moisan and Warmbier. *In re Newell* is representative. In the Newell case, the Patent Office's rejection relied upon an assertion that Newell had simply combined various elements of known tape drives to arrive at his claimed invention, and thus that the claimed invention was obvious under 35 USC § 103. The Court of Appeals for the Federal Circuit reversed the rejection. In doing so the Court stated:

> There is no suggestion or motivation in the prior art to combine these elements as combined by Newell, in order to obtain enhanced tape velocity and acceleration. See *In re: Laskawski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398-99 (Fed. Cir. 1989); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). The motivation to make a specific structure "is not abstract, but practical, and is always related to the properties or uses one skilled in the art would expect the [structure] to have, if made." *In re Gyurik*, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979). See also *Fromson v. Advance Offset Plate*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed Cir. 1985) ("The critical inquiry is whether 'there is something in the prior art as a whole *to suggest* the desirability, and thus the obviousness, of making the combination'")(Emphasis in original).

Thus, these cases do not establish that it is sufficient for *prima facie* obviousness to state that motivation to combine various parts taught in different references to result in the claimed structure can be found in "the properties or uses one skilled in the art would expect the structure to have". In fact, to do so would turn the entire obviousness analysis on its head. In essence, such an analysis would be purely an improper hindsight analysis (see *In re Dembiczak*, *supra*) – beginning with the applicant's claimed invention and then reconstructing an obviousness analysis based upon the properties that the applicant has disclosed that the claimed structure possesses.

Instead, these cases cited in the Office Action are fully consistent with the MPEP and cases cited in the introductory paragraphs above and the long line of cases on obviousness. In order to support a rejection for obviousness, the prior art references, by themselves and without hindsight taking applicant's teachings into account, must *positively motivate* one of ordinary skill in the art to carry out the claimed invention. In making such an assertion, the underlying findings by the Patent Office must be stated specifically, clearly, and particularly. *In re Lee*, *supra*. Conclusory statements regarding the references are not sufficient to support a finding of *prima facie* obviousness. *In re Dembiczak* and *Ex Parte Levengood*, *supra*.

The Office Action does not set forth any such positive motivation to modify the device of Mutterer with the extra parts from Moisan and Warmbier, and it is submitted that none can be found. Specifically, the Office Action proposes the addition of the solvent vapor removal device and the sampling cell capable of analyzing the gas by Fourier transform infrared spectrometry of Moisan to the device of Mutterer. But, is there any motivation to do so? No. The teachings of Mutterer suggest absolutely no need or for the vapor removal device or the sampling cell of Moisan. Mutterer teaches as to open vessel reaction systems

for processing liquid samples . See e.g. Col. 2, lines 56-57. Mutterer does not have teachings concerning the purposeful generation of useful gases, or any need to equip the Mutterer device with components that would facilitate such processes. In fact, at column 6, lines 31-42, Mutterer teaches:

> As a microwave assisted chemical reaction proceeds and particularly one where hot vapors are generated, they can be drawn off through the passageways 25 or 26, with the other passageway serving as an inlet for flowing gases or ambient air. By carrying off the hot gases in proactive fashion, the undesired recondensation of vapor in the vessel is minimized or entirely eliminated. As a result, in chemical reactions where reduction of the volume of the liquid is of some concern, or even a necessity, the vessel provides a superior structure for making sure that the vapors are removed as desired.

Thus, if anything, Mutterer teaches concern as to what is left in the reaction chamber. On the other hand, the Moisan system is configured for use in an entirely different process – exciting gases in the destruction of certain harmful substances. There is no teaching in Mutterer or in Moisan that would lead one of ordinary skilled in the art to be positively motivated to add the solvent vapor removal device and sample cell to the device of Mutterer. There is simply no need to do so considering the uses taught by Mutterer.

As to adding the gas concentration sensor of Warmbier to the device of Mutterer, similar reasoning applies. There is simply no reason from the teachings of Mutterer or Warmbier why one skilled in the art would be motivated to add the gas concentration sensor to Mutterer.

The Office Action also addresses the claimed supply vessel based on the teachings of Mutterer. In response, it is respectfully submitted that considering the lack of motivation to add the Moisan and Warmbier components to the device of Mutterer as discussed above, this is a moot point.

Also, at the bottom of page 5, the Office Action appears to address the relevance of the intended use of the claimed structure, stating that apparatus claims cover what a device is, not what a device does (citing Hewlett-Packard Co. v. Bausch & Lomb, Inc., 15 USPQ 2d 1525. In response, the applicant would like to note that the above analysis establishing that there is no prima facie case of obviousness is based upon what the device is – the claimed components. Thus, it is not believed that this citation applies to the present situation.

At page 6, the Office Action addresses claims 16, 37, 39, 40 and 44, stating that no patentable weight can be found in the recitation of the precursor material in these claims, citing some older cases on the point. In view of the patentability of the corresponding independent claims as discussed above, it is believed that this also is a moot point.

At page 6, the Office Action addresses claims 18-21. The Office Action does not cite any reference that teaches or suggests adding these claimed elements to the applicant's systems. Rather, the Office Action only states that it would have been obvious to modify "the references' teachings because 'the use of conventional materials to perform their known functions in a conventional process is obvious', *In re Raner* 134 USPQ 343". It is submitted that this is an insufficient basis upon which to make the subject rejections. First, the claims are directed not to processes, but rather to systems. Thus, the assertion that the claims somehow define a "conventional process" is incorrect. Second, each of these claims adds an element or limitation to further define and enhance the performance of a system of a claim from which they depend. To assert that these elements are "conventional" in the previously recited system, without any support whatsoever, is not a sufficient basis on which to make a rejection under 35 USC 103.

At page 6, the Office Action addresses claim 42, stating that Mutterer's device is for minimizing the reflux problem in the reaction chamber. It is submitted that this point is also moot, considering the shortcomings of the reference combination noted above.

The applicant would also like to draw the Examiner's attention to claim 38, which specifies that the system is "configured to generate said high purity gas containing no more than 100 parts per million of water vapor". This claim and its limitation do not appear to be addressed in the comments of the Office Action about the teachings of the references. It is submitted that no *prima facie* case of obviousness has been made as to this claim either.

In view of the foregoing comments, it is submitted that the rejection of claims 11-21, 32-34 and 37-44 is not proper. Reconsideration and withdrawal of this rejection are therefore solicited.

At pages 6 and 7 of the Office Action, in paragraph 7, claims 35 and 36 are rejected "under 35 U.S.C. 103(a) as being unpatentable over Mutterer '329 as modified by Moisan '836 and Warmbier '886 as applied to claims 11-21, 32-34 and 37-44 above, and further in view of Ayers (US 5,158,656). The Office Action states that the difference between the first three references and the claims is "the provision of a semiconductor device fluidly coupled to the manifold". The Office Action then states that Ayers shows this element, and that "The subject matter has a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified references' teachings as shown by Ayers because the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have [Citations Omitted]".

In response, similar to the discussions above, the cited cases do not establish that it is sufficient for *prima facie* obviousness to state that motivation to combine various parts taught in different references to result in the claimed structure can be found in "the properties or uses one skilled in the art would expect the structure to have". As noted above, to do so would turn the entire obviousness analysis on its head – making it an improper hindsight analysis beginning with the applicant's claimed invention and then reconstructing an obviousness analysis based upon the properties that the applicant has disclosed that the claimed structure possesses. Rather, there must be positive motivation in the references themselves to make the combination suggested in the Office Action. No such positive motivation has been stated in the Office Action, and it is submitted that none exists in the references. The device of Mutterer is not configured or intended for the generation of high purity gases that would be useful in the semiconductor manufacturing industry. Neither are the devices of Moisan or Warmbier. How then can motivation be found to borrow teachings from Ayers to hook up a semiconductor fabrication device to a modified liquid sample processing device of Mutterer?

In view of the comments above, it is submitted that the rejection of claims 35 and 36 is also not proper, and its withdrawal is solicited.

New claims 45-50 have been added to the application in order to diversify protection. It is believed that no new claim fees are due since the number of claims now pending is still several fewer than the number previously paid for. However, should any claim fees be due, please charge them to the Deposit Account identified on page 1 of this Amendment and Reply. Support for these claims is found at the following locations:

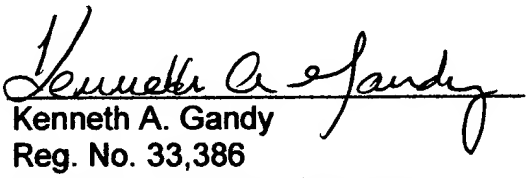
Claim 45: page 11, line 35;

Claim 46: page 11, line 34 to page 12, line 3 and Example 3, page 16;
Claim 47: page 12, lines 24-27;
Claim 48: page 12, lines 31-36;
Claim 49: page 14, lines 9-15;
Claim 50: page 10, lines 27-29.

It is submitted that these new claims are also patentably distinguished from the references relied upon in the Office Action. These claims are dependent upon claims discussed above, and patentably distinct for at least the same reasons. In addition, the Examiner will note that each of these claims adds an advantageous feature to the claimed gas generation system.

In view of the foregoing, reconsideration and allowance of this application containing claims 11-21 and 32-50 is requested. The Examiner is requested to contact the undersigned attorney by telephone if there are any questions about this submission, or if there are any measures that can be handled in that manner to expedite the allowance of this application.

Respectfully submitted,

By 

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